

*“Knowledge within a discipline develops according to the principle of natural selection.”*  
How useful is this metaphor?

### Step 1: Command terms

**How useful is this metaphor?:** The answer should discuss how applicable the metaphor is to one’s life. But it should be taken into account that “usefulness” is subjective and differs from person to person, depending on one’s area of interest or discipline. Essay could be broken down according to each principle of natural selection, and discussing how applicable each principle is to one’s life, or chosen discipline.

### Step 2: Key Words and Phrases

**“Knowledge within a discipline”:** the essay can compare and/or contrast various AOKs, but the metaphor should be evaluated within *one* particular AOK at a time. Since the metaphor states that knowledge *within a* discipline, the essay should focus on how the principles of natural selection affect the knowledge *within* that AOK.

**“Discipline”:** discipline is a branch of knowledge or an academic category for one’s field of study. In other words, for the purpose of the TOK essay, the discipline can be broken by the various AOKs.

**“Develops”:** it should be noted that the metaphor talks about how knowledge is *developed* according to the principles. In other words, how does the knowledge advance or evolve according to the principles? A counterclaim can be made that knowledge persists over time and does not evolve, or that knowledge instead adapts to circumstances.

**“Natural selection”:** this theory accounts for the adaptations of organisms, the innumerable features that equip organisms for survival and reproduction

**“Principles of natural selection”:** the principles include: variation, heritability, over-production, and survival of the fittest

### Step 3: Identify AOKs

#### 1. Natural Sciences

- the basis of natural selection developed through the natural science of biology.
- Charles Darwin is most famous for his theory of evolution, and coined the term “natural selection”
- before Darwin, however, there are many pre-Darwinian ideas about evolution, and this knowledge itself went through the process of natural selection and finally, Darwin’s theory of evolution survived
- many examples of animals (such as the origin of whales) can be used to defend the natural selection theory
- microevolution VS macroevolution
- why would we want to know this? how is knowing that evolution is developed according to the principle of natural selection beneficial to us?
- scientific knowledge changes all the time as scientists prove or alter older models and theories, so they apply more to real life or replicate real life models better. aside from the overused heliocentric VS geocentric example, theories such as what atoms look like or the appearance of cell membranes are prominent examples to show how natural sciences develop

#### 2. Art

- trends are developed during different time periods, people choose their preferred styles and this is how art movements develop —> how people emulate other styles because of their preferences
- different “-isms” was prevalent at a certain time period, and whatever art works survive during that period are the ones that are preserved and survive until modern times

#### 3. History

- history is written from many different perspectives, and each perspective holds certain biases that alters the knowledge to a certain extent. so as people read more about a certain historical event, the more perspectives they encounter, the fuller their understanding - their knowledge of that event will change as they read more variations of the text
- history does not have to be officially recorded, but can also be events that are passed down generation to generation. if the historical knowledge can be passed down for many generations, that means it is able to withstand the tests of the changes of culture and beliefs —> this type of knowledge does not change or develop over time, but instead persists (counter claim)
- language WOK —> history written in language

### Step 4: Identify WOKs

#### 1. sense perception

- sense perception is needed in basically everything one does in life. extending the art example above, each individual in a society chooses their preference artworks and the general trend of that time period is what forms the prevalent style of that time
- other types of art work also require extensive use of sense perception - movies, literature, etc.
- scientific studies also require sense perception to observe and develop model and theories

#### 2. emotion and reason

- though natural selection states that the changes that occur are for the organism to better adapt to the environment, many of these choices have become very subjective, thus using the WOK of emotions
- many knowledge or “things” that undergo natural selection are, at first, viewed as outcasts and thought of as incorrect. this is emotions and human nature overriding reason, where the initial reaction is to preserve current beliefs and disregard anything that opposes traditional trends.
- however, after substantial and an abundance of evidence has been used to backup, reason helps humans to understand
- reasoning is needed in many scientific experiments, to develop hypotheses and back them up with evidence according to the observations made.

### Step 5: Knowledge Issues

- to what extent is applying the principles of natural selection beneficial to the human species?
- how can the principles be seen in realms other than the natural sciences, the original realm of natural selection?
- in what ways are culture (indigenous knowledge systems) and beliefs affected by the development of knowledge through the principles of natural selection?

**Step 6: Assumptions**

- evolution is actually based upon natural selection, and that certain traits are favored above others in the environment.
- human beings are actively seeking the “best fit” knowledge and eliminating knowledge that do not withstand the principles of natural selection. For example, scientists who are actively seeking for newer theories to prove old ones wrong, and to make more accurate models.
- all knowledge are developed through prescribed principles, and this is the best way for human beings to attain knowledge

**Step 7: What stance will I take?**

To a large extent, knowledge within disciplines do follow the principles of natural selection.

**Step 9: Counter Claims**

- whether or not evolution is “progressive” or develops through time is an unanswered question. species *adapt* to their environment - does this count as developing? or merely adaptation according to the change of environment?
- there are many art works that do not go according to the trend at that time period (eg. Van Gogh), but still become famous after the artists’ deaths —> this is not according to the principle of survival of the fittest, as these artworks were considered outcasts in their time
- there is a whole realm of art called parody where artists copy and mimic someone else’s art - these are highly popular but goes against the first principle of natural selection
- is going according to the principles of natural selection truly beneficial?